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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/038,099	10/29/2001	Roy D. Mead	22927-7031	5351

7590 11/05/2003

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EXAMINER
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LIN, TINA M

ART UNIT	PAPER NUMBER
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2874

DATE MAILED: 11/05/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>	
	10/038,099	MEAD ET AL.	
	<b>Examiner</b>	<b>Art Unit</b>	
	Tina M Lin	2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☐ Responsive to communication(s) filed on \_\_\_\_.
- 2a) ☐ This action is **FINAL**.      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_ is/are withdrawn from consideration.
- 5) ☒ Claim(s) 40 and 41 is/are allowed.
- 6) ☒ Claim(s) 1-31 and 33-39 is/are rejected.
- 7) ☒ Claim(s) 32 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_ are subject to restriction and/or election requirement.

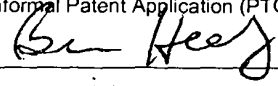
**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- |   |  |
|---|--|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)                 | 4) <input type="checkbox"/> Interview Summary (PTO-413) Paper No(s). ____  |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)        | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)  |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ | 6) <input type="checkbox"/> Other:  |

### **DETAILED ACTION**

New corrected drawings are required in this application because: The drawings filed with this application on 29 October 2001, are objected to as being informal. Notice that the labels on the figures are handwritten. Applicant is advised to employ the services of a competent patent draftsman outside the Office, as the U.S. Patent and Trademark Office no longer prepares new drawings. The corrected drawings are required in reply to the Office action to avoid abandonment of the application. The requirement for corrected drawings will not be held in abeyance.

#### ***Claim Objections***

Claim 39 is objected to because of the following informalities: Claim 39, as it reads, is dependant on claim I. However, there is no claim I in this applicant. The Examiner believes claim 39 should be dependent on claim 38 and has examined the claim as if dependent on claim 38. Appropriate correction is required.

#### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claim 1, 2, and 11 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,456,762 B1 to Nishiki et al. and in further view of U.S. Patent 6,297,894 B1 to Miller et al. Nishiki et al. discloses forming a Bragg grating by applying an ultraviolet light emitted from

a second harmonic laser with a wavelength of about 240 nm and an outputting means to write the grating on the fiber. Nishiki et al. further discloses that the ultraviolet laser light is only one possibility for writing a Bragg grating into a fiber, but fails to disclose a Ti:sapphire laser specifically for write the Bragg grating. (Column 4 Lines 10-30) Applicant additionally discloses that a Ti:sapphire laser medium is not necessary to produce the Bragg gratings as well. (Specification, Page 3, Lines 10-12) However, Miller et al. also discloses fabricating a Bragg grating with a Ti:sapphire laser system. Therefore, it would have been at the time the invention was made to a person having ordinary skill in the art to have used a Ti:sapphire laser at a wavelength between 230-250 nm to write a Bragg grating into an optical fiber.

Claims 15, 21-28 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,528,239 B1 to Starodubov and further in view of U.S. Patent 6,574,255 B1 to Caprara et al. Starodubov et al. discloses forming a Bragg grating using a UV light with a wavelength greater than 220 nm. (Column 4) But, Starodubov fails to disclose a diode laser diode to produce a third harmonic beam with a fundamental frequency at approximately 720 nm to form the Bragg grating. However, Caprara et al. discloses a laser diode pumped to produce a third harmonic with a fundamental frequency between 425 nm to 1800 nm by frequency doubling or tripling to create a second or third harmonic. Since Starodubov does not disclose the details to produce the UV light used to produce the Bragg grating, and Caprara et al. discloses a method to produce the laser diode light, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have used a diode laser diode to produce a third harmonic beam with a fundamental frequency at approximately 720 nm to form the Bragg grating.

Claims 29-31 and 33-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,310,996 to Byron and in further view of U.S. Patent 6,297,894 B1 to Miller et al. Byron discloses an apparatus for producing a Bragg grating in an optical, where the solid state laser emits an output UV beam with a wavelength between 230-250 nms, a phase mask for diffracting rays from the output beam, two mirrors and an actuating means for controlling the mirrors to alter the separation between the phase mask and fiber. But Byron fails to disclose a Ti:sapphire laser to emit the output beam. However, Miller et al. also discloses fabricating a Bragg grating with a Ti:sapphire laser system. Therefore, it would have been at the time the invention was made to a person having ordinary skill in the art to have used a Ti:sapphire laser to write a Bragg grating into an optical fiber. Furthermore, Byron fails to disclose a prism interferometer to produce the Bragg grating. However, a prism and a mirror are similar components. Both reflect or change the angle of the light in order to direct the output light beam. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have used a prism in place of a mirror to produce a Bragg grating in an optical fiber.

Claims 3-10, 12-14, and 16-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,456,762 B1 to Nishiki et al. and in view of U.S. Patent 6,297,894 B1 to Miller et al. as applied to claims 1 and 11 above and in further view of U.S. Patent 6,574,255 B1 to Caprara et al. Nishiki et al. and Miller et al. disclose all discussed above, but fails to further discuss the controlling means of the laser. However, Caprara et al. discloses a laser diode means to create a second and third harmonic emitted by doubling or tripling the frequency of an emitted light and mixing the harmonics with the output beam to further control the output laser beam.

Furthermore, Caprara et al. discloses resonators and non-linear crystals to produce second and third harmonic pump beams and mixing the output of these harmonics to create the desired output. Since Caprara et al. discusses many various methods to create and mix second and third harmonic output beams to be used in optical apparatuses, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have used a laser diode, non-linear crystals or any other method in order to create the desired output beam to produce the desired Bragg grating on an optical fiber.

***Allowable Subject Matter***

The following is a statement of reasons for the indication of allowable subject matter:

Claim 32 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. The prior art fails to disclose or reasonably suggest a means for rotating a waveguide in a phase mask interferometer, where the interferometer is used to produce an output beam to write a Bragg grating.

Claims 40 and 41 are allowed. The prior art of record fails to disclose or reasonably suggest an apparatus with a laser medium, pump which emits a fundamental pump beam, a doubler crystal, Ti:sapphire laser medium, nonlinear crystal, a processor, a wavelength control element, a control for sending the wavelength signal to the processor and a Bragg grating writing means to produce a Bragg grating on an optical fiber.

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. References F-I all discuss alternative methods to produce Bragg gratings and controlling means to create difference harmonics.


This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tina M Lin whose telephone number is (703) 305-1959. The examiner can normally be reached on Monday-Friday 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (703) 308-4819. The fax phone number for the organization where this application or proceeding is assigned is (703) 872-9306.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

  
TML

  
Ben Healy